كنت أود تسمية هذا الإيميل كيفية الحفاظ على بطارية اللابتوب و الجوال

لكن الآن التسمية هي كيف نتعامل مع بطاريات من نوع

Lithium-ion

و هي البطّاريات التي تستخدم في اللابتوب و الموبايل

<u>إليكم مجموعة من التلميحات:</u>

البطارية هي منتج يبدأ بالتلف من لحظة خروجه من المصنع .

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عدد دورات الشحن التقريبية لبطاريات من نوع

Lithium-ion

هو ١٠٠٠ دورة في حوالي من ثلاث إلى أربع سنوات يعني البطارية ستتلف ستتلف حتى و إن لم تستخدمها لذا نفضل الاستفادة من البطارية حتى لا نتلفها و نحن حزينون عليها و نقول ليتنا عملنا عيها و استهلكناها لقد حرمنا أنفسنا متعة كبيرة لنحافظ عليها فرميناها جديدة ..

أما الموبايل فعدد دورات الشحن التقريبية هي حوالي ٥٠٠دورة تقريباً.

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البطارية سوف تستهلك حتى و إن لم تستعملها فاستعملها.

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أفرغها ثم أعد شحنها على الأقل كل شهر مرة.

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إذا أردت تخزين البطارية أي أن تتركها في مكان ما لمدة طوية احرص أن يكون التخزين في مكان جاف و درجة حرارة مناسبة و البطارية فيها <u>٤٠٪</u> شحن هذا الأسلوب

يتبعه أكثر مصنعو البطاريات في العالم حيث نلاحظ أن بطارية اللابتوب يأتي معها أربعون بالمائة شحن .

انتبه لا تخزنها وهي ممتلئة كلياً أو فارغة كلياً حسب الجدول التالي :

المتبقي من سعة البطارية نوع Lithium-ion بعد سنة من التخزين عند تخزينها بعد شحنها 40 %	المتبقي من سعة البطارية نوع Lithium-ion بعد سنة من التخزين عند تخزينها بعد شحنها 100 %	الحرارة
98%	94%	0 C
96%	80%	25 C
85%	65%	40 C
75%	60%	60 C

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إن بطارية Lithium-ion لا تحتاج الى ٨ ساعات شحن قبل استخدامها لأول مرة وشحنها أول مرة لا يختلف عن شحنها حتى بعد فترة طويلة من الاستخدام تلك الطريقة أي ال٨ ساعات عند المرة الأولى لنوع آخر من البطاريات ...أما بطاريات Lithium-ion فإن شحنها عند المرة الأولى يتم بأن تشحنها حتى تعطيك إشارة أنها ممتلئة .

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إن شحن البطارية بشكل تام و تفريغها بشكل تام جيد فهو يساعد على إعادة إنعاش الدارة الذكية في البطارية .

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أخيراً يمكنكم الإطلاع على الجداول التالية لمزيد من المعلومات عن:

بطاريات اللابتوب

البطاريات المستعملة في السيارات

و تلك المستخدمة في وحدات عدم انقطاع التيار الكهربائي ...

-	Nickel-cadmium (NiCd)	Nickel-metal-hydride (NiMH)	Lithium-ion (Li-ion)	Lead-acid (Sealed or flooded)

Used in	Two-way radios, power tools, medical.	Similar application as NiCd; higher density.	Cell phones, laptops, video cameras.	Motorcycles, cars, wheelchairs, UPS.
Charging	Do run the battery fully down once per month; try to use up all energy before charging. Do not leave battery in charger for more than 2 days because of memory. Avoid getting battery too hot during charge. Charge methods: Constant current, followed by trickle charge when full. Fast-charge preferred over slow charge. Slow charge = 16h Rapid charge = 3h Fast charge = 1h+	Do run the battery fully down once every 3 months. Over-cycling is not advised. Do not leave battery in charger for more than 2 days because of memory. Avoid getting battery too hot during charge. Charge methods: Constant current, followed by trickle charge when full. Slow charge not recommended. Battery will get warm towards full charge. Rapid charge = 3h Fast charge = 1h+	Do charge the battery often. The battery lasts longer with partial rather than full discharges. Do not use if pack gets hot during charge. Check also charger. Charge methods: Constant voltage to 4.20V/cell (typical). No trickle-charge when full. Li-ion may remain in the charger (no memory). Battery must remain cool. No fast-charge possible. Rapid charge = 3h	Do charge the battery immediately after use. Lead-acid must always be kept in a charged condition. The battery lasts longer with partial rather than full discharges. Over-cycling is not advised. Charge methods: Constant voltage to 2.40/cell (typical), followed by float held at 2.25V/cell. Battery must remain cool. Fast charge not possible; can remain on float charge. Slow charge = 14h Rapid charge = 10h
Discharging	Full cycle does not harm NiCd. *NiCd is one of the most hardy and durable chemistries.*	Avoid too many full cycles because of wear. Use 80% depth-of-discharge. *NiMH has higher energy density than NiCd at the expense of shorter cycle life.*	Avoid full cycle because of wear. 80% depth-of-discharge recommended. Re-charge more often. Avoid full discharge. Low voltage may cut off safety circuit	Avoid full cycle because of wear. Use 80% depth-of-discharge. Recharge more often or use larger battery. *Low energy density limits lead-acid to wheeled applications*
Service needs	Discharge to 1V/cell every 1 to 2 months to prevent memory. Do not discharge before each charge.	Discharge to 1V/cell every 3 months to prevent memory. Do not discharge before each charge	No maintenance needed. Loses capacity due to aging whether used or not.	Apply topping charge every 6 months. Occasional discharge/ charge may improve performance.
Storage	Best to store at	Store at 40%	Store at 40%	Store always at a

	40% charge in a cool place. Open terminal voltage cannot determine state-of-charge. 5 years and longer storage possible. Prime battery if stored longer than 6 months.	charge in a cool place. Open terminal voltage cannot determine state-of-charge. Prime battery if stored longer than 6 months.	charge in a cool place (40% state-of-charge reads 3.75-3.80V/cell at open terminal. Do not store at full charge and at warm temperatures because of accelerated aging.	full state-of-charge. Do not store below 2.10V/cell; apply topping charge very 6 months.
Disposal	Do not dispose; contains toxic metals; must be recycled.	Should be recycled. Low volume household NiMH may be disposed.	Should be recycled. Low volume household Li-ion may be disposed	Do not dispose; must be recycled.

x	**Nickel-based (NiCd and NiMH)**	**Lithium-ion (Li-ion)**	**Lead-acid (Sealed or flooded)**
How should I prepare my new battery?	Nickel-based batteries come partially charged. Prime new battery by putting on a 14-16h charge.	Li-ion comes partially charged. You can use the battery right away and charge it when needed.	Lead acid comes fully charged. For best result, apply a topping charge to assure full charge.
Can I damage my battery if incorrectly prepared?	No; without priming, the performance will be low at first, then gradually improve with use.	No; Li-ion is forgiving to partial and full charge. No priming is needed when new.	Lead acid needs a fully saturated charge to keep good performance. A charge can take over 10h.
How do I prepare a battery with charge indication?	Fully charge and discharge battery. Repeat when readings get inaccurate.	Fully charge and discharge battery. Repeat when readings get inaccurate.	Larger lead acid use different charge indicator to nickel & lithium-based chemistries.
Should I use up all battery energy before charging?	Yes, fully discharge once every 1-3 months to prevent memory. It is not necessary to deplete the battery before each charge. Over cycling wears down NiMH.	No, it is better to recharge more often; avoid frequent full discharges. Yes, on batteries with a fuel gauge, allow a full discharge once a month to enable reset	No, it is better to recharge more often; avoid frequent full discharges. Deep cycles wear down the battery. Use a larger battery if full cycles are required.
Should I charge my battery partially or fully?	Allow full charge without interruptions. Repeated partial charge can cause heat buildup. (Many	Does not matter. Charging in stages is acceptable. Full charge termination occurs by reading	Does not matter. Charging in stages is acceptable. Full charge termination occurs by reading

	chargers terminate charge by heat. A fully charged battery will re-heat, causing overcharge.)	the voltage level and charge current. Charging a full battery is safe and does not cause harm.	the voltage level and charge current. Charging a full battery is safe and does not cause harm.
- Should I remove the battery from the charger when full? - Should I remove the AC when my laptop is not in use?	Yes, it is best to remove the pack from the charger when full. A prolonged trickle charge to a fully charged battery can be harmful. (Laptops use Lithium-ion)	It does not matter. The charger automatically cuts the charge current when the battery is full. A laptop may be connected to the AC when not in use.	A float charge of about 2.27V/cell is advisable. Do not allow the open cell voltage to drop below 2.10V/cell while in storage.(Not used for laptops)
Should the battery be kept charged when not in use?	Not critical. Manufacturers recommend a 40% charge for long storage. (Open terminal voltage cannot determine state-of-charge.) Store in a cool place. Battery can be fully depleted and recharged. Priming may be needed.	Best to store at 40% charge or 3.75-3.80V/cell open terminal. Cool storage is more important than state-of-charge. Do not fully deplete battery because Li-ion may turn off its protection circuit.	IMPORTANT: always keep battery fully charged. A discharged battery causes sulfation (insulating layer in the cell). This condition is often irreversible.
Will the battery heat up during charge?	Yes, towards full charge. The battery must cool down when ready. Discontinue using a charger that keeps the battery warm on standby.	No, little heating is generated during charge. A large laptop battery may get lukewarm. Do not allow the battery to heat during charge.	No, the battery should remain cool or lukewarm to the touch. The battery must remain cold on maintenance charge.
What are the allowable charging temperatures?	Important: Rechargeable batteries can be used under a wide temperature range. This does not automatically permit charging at these extreme conditions. The maximum allowable charge temperatures are shown below:		
Slow charge (0.1) Fast charge (0.5-1C)	0°C - 45°C (32°F - 113°F) 5°C - 45°C (41°F - 113°F) Charging a hot battery decreases the charge time. The battery may not fully charge.	0°C - 45°C (32°F - 113°F) 5C° - 45°C (41°F - 113°F) Temperature sensor may prevent charge or cut off the charge prematurely.	0°C - 45°C (32°F - 113°F) 5C° - 45°C (41°F - 113°F) Warm temperature lowers the battery voltage. Serious overcharge occurs if the cut-off voltage is not reached.
What should I know about chargers?	Best results are achieved with a fast-charger that terminates the charge by other than temperature alone. Fastest full-charge time: Slightly over 1 hour.	Charger should apply full charge. Avoid economy chargers that advertise one-hours charge. Fastest full-charge time: 2-3 hours.	Multi-level charges shorten charge time. Charge must be fully saturated. Failing to do so will gradually decrease the capacity. Fastest full-charge time: 8-14 hours.